ARTICLE VII. INTERNATIONAL FUEL GAS CODE

Sec. 8-700. Adopted; where filed; amendments.

(a) That certain document known as the "International Fuel Gas Code, 2009 Edition," which has been published as a code in book form by the International Code Council, chapters two through seven and appendix chapters A, B and C inclusive, three (3) copies with amendments of which are on file in the office of the City Clerk. (Ord. No. 2011.33, 9-22-11)

Charter reference—Adoption by reference, § 2.14. **State law reference**—Adoption by reference, A.R.S. § 9-801 et seq.

Sec. 303 APPLIANCE LOCATION.

Section 303.3 is hereby amended as follows:

Section 303.3 Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical room, or in a space that opens only into such rooms or spaces, or any room operating under negative pressure unless the appliances are listed for that use except where the installation complies with one of the following:

- 1. The appliance is a direct-vent appliance installed in accordance with the conditions of the listing and the manufacturer's instructions.
- 2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5.
- 3. A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section 304.5.
- 4. A single wall-mounted unvented room heater is installed in a bedroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 10,000 Btu/h (2.93 kW). The bedroom shall meet the required volume criteria of Section 304.5.
- 5. The appliance is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an approved self-closing device. All combustion air shall be taken directly from the outdoors in accordance with Section 304.6.

Liquefied Petroleum (LPG) appliances shall not be installed in an attic, or other location that would cause ponding or retention of gas.

Section 303.7 is hereby amended as follows:

Section 303.7 Pit locations. Appliances installed in pits or excavations shall not come in contact with the surrounding soil. The sides of the pit or excavation shall be held back a minimum of 12 inches (305 mm) from the appliance. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry. Such concrete or masonry shall extend a minimum of 4 inches (102 mm) above to adjacent grade and shall have sufficient lateral load-bearing capacity to resist collapse. The appliance shall be protected from flooding in an approved manner.

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Liquefied petroleum (LPG) appliances shall not be installed in a pit, or other location that would cause a ponding or retention of gas.

(Ord. No. 2011.33, 9-22-11)

Sec. 304 COMBUSTION, VENTILATION AND DILUTION AIR.

Section 304.1 is hereby amended as follows:

Section 304.1 General. Air for combustion, ventilation and dilution of flue gases for appliances installed in buildings shall be provided by application of one of the methods prescribed in Sections 304.5 through 304.9. Where the requirements of Section 304.5 are not met, outdoor air shall be introduced in accordance with one of the methods prescribed in Sections 304.6 through 304.9. For LPG appliances, any duct serving the lower opening shall be at the floor level and slope to the outdoors without traps or pockets. Direct-vent appliances, gas appliances of other than Category I shall be provided with combustion ventilation and dilution air in accordance with the appliance manufacturer's instructions.

Section 304.1.1 is hereby amended as follows:

Section 304.1.1 Prohibited sources. Combustion air ducts and openings shall not connect appliance enclosures with space in which the operation of a fan may adversely affect the flow of combustion air. Combustion air shall not be obtained from an area in which flammable vapors present a hazard. Fuel-fired appliances shall not obtain combustion air from any of the following rooms or spaces:

- 1. Sleeping rooms.
- 2. Bathrooms.
- 3. Toilet rooms.

Exception: The following appliances may be located in sleeping rooms, bathrooms and toilet rooms:

- Appliances installed in an enclosure in which all combustion air is taken from the outdoors and the enclosure is equipped with a solid weather-stripped door and selfclosing device.
- 2. Direct-vent appliances that obtain all combustion air directly from the outdoors.

Section 304.11 is hereby amended as follows:

Section 304.11 Combustion air ducts. Combustion air ducts shall comply with all of the following:

- 1. Ducts shall be constructed of galvanized steel complying with Chapter 6 of the International Mechanical Code or of a material having equivalent corrosion resistance, strength and rigidity.
 - **Exception:** Within dwellings units, unobstructed stud and joist spaces shall not be prohibited from conveying combustion air, provided that not more than one required fireblock is removed.
- 2. Ducts shall terminate in an unobstructed space allowing free movement of combustion air to the appliances.
- 3. Ducts shall serve a single enclosure.
- 4. A single duct shall not serve both upper and lower combustion air openings where both such openings are used. The separation between ducts serving upper and lower combustion air openings shall be maintained to the source of combustion air.
- 5. Ducts shall not be screened where terminating in an attic space.

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- 6. Horizontal upper combustion air ducts shall not slope downward toward the source of combustion air
- 7. The remaining space surrounding a chimney liner, gas vent, special gas vent or plastic piping installed within a masonry, metal or factory-built chimney shall not be used to supply combustion air.

Exception: Direct-vent gas-fired appliances designed for installation in a solid fuel-burning fireplace where installed in accordance with the manufacturer's instructions.

- 8. Combustion air intake openings located on the exterior of a building shall have the lowest side of such openings located not less than 12 inches (305 mm) vertically from the adjoining finished ground level.
- 9. For LPG appliances, any duct serving the lower opening shall be at the floor level and slope to the outdoors without traps or pockets.

(Ord. No. 2011.33, 9-22-11)

Sec. 305 INSTALLATION

Section 305.3 is hereby amended as follows:

Section 305.3 Elevation of ignition source. Equipment and appliances having an ignition source shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor in hazardous locations and public garages, private garages, repair garages, motor fuel-dispensing facilities and parking garages. For the purpose of this section, rooms or spaces that are not part of the living space of a dwelling unit and that communicate directly with a private garage through openings shall be considered to be part of the private garage.

Exceptions:

- 1. Elevation of the ignition source is not required for appliances that are listed as flammable vapor resistant and for installation without elevation.
- 2. Direct-vent appliances that obtain all combustion air directly from the outdoors.
- 3. Clothes dryers installed in private garages.

Section 305.7 is hereby amended as follows:

Section 305.7 Clearances from grade. Equipment and appliances installed at grade level shall be supported on a level concrete slab or other approved material extending not less than 3 inches (76 mm) above finished grade or shall be suspended a minimum of 6 inches (152 mm) above finished grade. Such supports shall be installed in accordance with the manufacturer's installation instructions. (Ord. No. 2011.33, 9-22-11)

Sec. 404. PIPING SYSTEM INSTALLATION.

Section 404.1 is hereby amended as follows:

Section 404.4.1 Underground piping. No gas piping shall be permitted under asphalt, concrete or other paved surface that adjoins any building or structure unless installed in a gas-tight conduit or other approved method of venting is provided.

The conduit shall be of wrought iron, plastic pipe, steel pipe or other approved conduit material. The conduit shall be protected from corrosion in accordance with Section 404.9. The interior diameter of the conduit shall be not less than one-half inch larger than the outside diameter of the gas pipe within. The

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conduit shall extend to a point not less than 12 inches (305 mm) beyond or 4 inches (102 mm) above the paved surface. The ends shall not be sealed.

Section 404.10 is hereby amended as follows:

Section 404.10 Minimum burial depth. Underground piping systems shall be installed a minimum depth of 12 inches (305 mm) below grade for metal, and 18 inches (457 mm) below grade for plastic piping.

Section 404.10.1 is hereby deleted.

Section 404.15.1 is hereby amended as follows:

Section 404.15.1 Limitations. Plastic pipe shall be installed outdoors underground only. Plastic pipe shall not be used within or under any building or slab or be operated at pressures greater than 100 psig (689 kPa) for natural gas or 30 psig (207 kPa) for LP-gas.

Exceptions:

- 1. Plastic pipe shall be permitted to terminate above ground outside of buildings where installed in pre-manufactured anodeless risers or service head adapter risers that are installed in accordance with the manufacturer's installation instructions.
- 2. Plastic pipe shall be permitted to terminate with a wall head adapter within buildings where the plastic pipe is inserted in a piping material for fuel gas use in buildings.
- 3. Plastic pipe shall be permitted under outdoor patio, walkway and driveway slabs provided that the burial depth complies with Section 404.10 and Section 404.4.1.

(Ord. No. 2011.33, 9-22-11)

Sec. 406 INSPECTION, TESTING AND PURGING.

Section 406.4 is hereby amended as follows:

Section 406.4 Test pressure measurement. Test pressure shall be measured with a manometer or with a pressure-measuring device designed and calibrated to read, record, or indicate a pressure loss caused by leakage during the pressure test period. The source of pressure shall be isolated before the pressure tests are made.

406.4.1 Test pressure. The test pressure to be used shall be no less than ten (10) pounds per square inch (69 kPa) gauge pressure, or where approved by the Building Official, the piping and valves may be tested at a pressure of at least six (6) inches (152.4 mm) of mercury, measured with a manometer or slope gauge. For welded piping, and for piping carrying gas at pressures in excess of fourteen (14) inches (0.4 m) water column pressure, the test pressure shall be no less than sixty (60) pounds per square inch (413 kPa). Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe.

406.4.2 Test duration. Test duration shall be not less than fifteen (15) minutes or for welded pipe and piping carrying gas at pressures in excess of fourteen (14) inches (0.4 m) water column pressure, the

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test duration shall be not less than thirty (30) minutes. The duration of the test shall not be required to exceed 24 hours.

- 406.4.3 Test Gauges. Tests required by this Code which are performed utilizing dial gauges shall be limited to gauges having the following pressure increments or graduations:
- 406.4.3.1. Required pressure tests of ten (10) pounds (69 kPa) or less shall be performed with gauges having increments of one-tenth (1/10) pound (0.69 kPa) or less.
- 406.4.3.2. Required pressure tests exceeding ten (10) pounds (69 kPa) but less than one hundred (100) pounds (690 kPa) shall be performed with gauges having increments of one pound (7 kPa) or less.
- 406.4.3.3. Required pressure tests exceeding one hundred (100) pounds (690 kPa) shall be performed with gauges having increments 2 psi (14 kPa) or less.
- 406.4.3.4. Pressure tests required by this code, which are performed utilizing dial gauges, shall be limited to a gauge having a maximum gauge rating not exceeding twice the applied test pressure. (Ord. No. 2011.33, 9-22-11)